

## Abstract

[0044] The invention is directed to a device by which two plastic parts can be welded together along their contacting joining surfaces (workpiece) quasi-simultaneously by laser radiation along a joining contour. The beam bundle emitted by a laser diode (1) is coupled into a first gradient index lens (4.1) by a light-conducting fiber (2). The first gradient index lens (4.1) concentrates the beam bundle on a workpiece surface (5), this first gradient index lens (4.1) being deflected relative to the exit surface (3) of the light-conducting fiber (2) so that the beam bundle scans a joining contour on the workpiece surface (5) in order to heat, plasticize and weld the workpiece quasi-simultaneously. A plurality of such devices may be put together to form a more complex device in order to apply radiation to larger joining contours simultaneously and quasi-simultaneously.